



SEQUENCE LISTING

<110> Look, A. Thomas
Langenau, David M.

<120> Transgenic Cancer Models in Fish

<130> 112706.123

<140> US 10/659,705
<141> 2003-09-11

<150> US 60/409,585
<151> 2002-09-11

<160> 8

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<212> PRT
<213> Artificial Sequence

<220>

<223> BCL2 proteins

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Met Ala Asn Glu Ile Ser Tyr Asp Asn Arg Asn Ile Val Glu Lys Tyr
1 5 10 15
Leu Lys His Lys Leu Ser Lys Arg Gly Tyr Val Trp Lys Cys Gln Ser
20 25 30
Ser Ala Glu Glu Asp Asp Thr Phe Asn Lys Ala Val Glu Glu Ser Ser
35 40 45
Pro Asn Ser Asp Arg Arg Leu Gln Ala Pro Ser Ala Gly Gly Gly Asn
50 55 60
Asn Ser Glu Cys Leu Ile Ala Arg Val Thr Arg Ser Asp Pro His Leu
65 70 75 80
Arg Leu Tyr Arg Val Leu Arg Asp Ala Gly Asp Glu Ile Glu Arg Ile
85 90 95
Tyr Gln Arg Glu Phe Glu Glu Met Ser Gln Gln Met Val Phe Asn Pro
100 105 110
Asn Ser Ala Gln Arg Ser Pro Leu Thr Val Ala Glu Glu Leu Phe Arg
115 120 125
Asp Gly Val Asn Trp Gly Arg Ile Ile Ala Phe Phe Glu Phe Gly Gly
130 135 140
Thr Met Cys Val Glu Ser Val Asn Arg Glu Met Ala Ser Gln Val Asp
145 150 155 160
Asn Ile Ala His Trp Met Thr Asp Tyr Leu Asn Gly Pro Leu Glu Asn
165 170 175
Trp Ile Glu Glu Asn Gly Gly Trp Asp Ala Phe Val Glu Met Tyr Gly
180 185 190
Gln Gln Arg Asp Ser Val Phe His Pro Phe Ser Tyr Leu Thr Lys Val
195 200 205
Leu Gly Leu Ala Ala Leu Gly Leu Ala Gly Val Thr Ile Gly Ala Phe
210 215 220
Phe Ala Gln Lys
225

<210> 2
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<220>
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<400> 2

Leu	Asn	Pro	Lys	Lys	Glu	Asn	Asn	Gly	Val	Lys	Asn	Gly	Asp	Arg	
1			5			10					15				
Glu	Lys	Gln	His	Glu	Thr	Gly	Asn	Thr	Ile	Phe	Arg	Gly	Ser	Pro	Asp
	20					25					30				
Lys	Tyr	Leu	Thr	Glu	Gln	Gly	Trp	Met	Ala	Gln	Ser	Asp	Leu	Gly	Ser
	35					40					45				
Arg	Ala	Leu	Val	Glu	Asp	Leu	Val	Arg	Tyr	Lys	Leu	Cys	Gln	Arg	Ser
	50					55					60				
Leu	Val	Pro	Glu	Pro	Ser	Gly	Ala	Ala	Ser	Cys	Ala	Leu	His	Ser	Ala
	65					70				75			80		
Met	Arg	Ala	Ala	Gly	Asp	Glu	Phe	Glu	Glu	Arg	Pro	Arg	Gln	Ala	Phe
					85			90			95				
Ser	Glu	Ile	Ser	Thr	Gln	Ile	His	Val	Thr	Pro	Gly	Thr	Ala	Tyr	Ala
					100			105			110				
Arg	Phe	Ala	Glu	Val	Ala	Gly	Ser	Leu	Phe	Gln	Gly	Gly	Val	Asn	Trp
					115			120			125				
Gly	Arg	Ile	Val	Ala	Phe	Phe	Val	Phe	Gly	Ala	Ala	Leu	Cys	Ala	Glu
					130			135			140				
Ser	Val	Asn	Lys	Glu	Met	Ser	Pro	Leu	Leu	Pro	Arg	Ile	Gln	Asp	Trp
	145				150					155			160		
Met	Val	Thr	Tyr	Leu	Glu	Thr	Asn	Leu	Asp	Arg	Trp	Ile	Gln	Ser	Asn
					165				170			175			
Gly	Gly	Trp	Asn	Gly	Phe	Leu	Thr	Leu	Tyr	Gly	Asp	Gly	Ala	Ile	Glu
					180			185			190				
Glu	Ala	Arg	Arg	Gln	Arg	Glu	Gly	Asn	Trp	Ala	Ser	Leu	Lys	Thr	Val
					195			200			205				
Leu	Thr	Gly	Ala	Val	Ala	Leu	Gly	Ala	Leu	Met	Thr	Val	Gly	Ala	Leu
	210					215					220				
Phe	Ala	Ser	Lys												
	225														

<210> 3
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 <213> Artificial Sequence

<220>
 <223> BCL2 proteins

<400> 3

Met	Ala	His	Pro	Gly	Arg	Arg	Gly	Tyr	Asp	Asn	Arg	Glu	Ile	Val	Leu
1			5		10					15					
Lys	Tyr	Ile	His	Tyr	Lys	Leu	Ser	Gln	Arg	Gly	Tyr	Asp	Trp	Ala	Ala
					20			25			30				
Gly	Glu	Asp	Arg	Pro	Pro	Val	Pro	Pro	Ala	Pro	Ala	Pro	Ala	Ala	Ala
					35			40			45				
Pro	Ala	Ala	Val	Ala	Ala	Ala	Gly	Ala	Ser	Ser	His	His	Arg	Pro	Glu
					50			55			60				

Pro Pro Gly Ser Ala Ala Ala Ser Glu Val Pro Pro Ala Glu Gly Leu
 65 70 75 80
 Arg Pro Ala Pro Pro Gly Val His Leu Ala Leu Arg Gln Ala Gly Asp
 85 90 95
 Glu Phe Ser Arg Arg Tyr Gln Arg Asp Phe Ala Gln Met Ser Gly Gln
 100 105 110
 Leu His Leu Thr Pro Phe Thr Ala His Gly Arg Phe Val Ala Val Val
 115 120 125
 Glu Glu Leu Phe Arg Asp Gly Val Asn Trp Gly Arg Ile Val Ala Phe
 130 135 140
 Phe Glu Arg Gly Gly Val Met Cys Val Glu Ser Val Asn Arg Glu Met
 145 150 155 160
 Ser Pro Leu Val Asp Asn Ile Ala Thr Trp Met Thr Glu Tyr Leu Asn
 165 170 175
 Arg His Leu His Asn Trp Ile Gln Asp Asn Gly Gly Trp Asp Ala Phe
 180 185 190
 Val Glu Leu Tyr Gly Asn Ser Met Arg Pro Leu Phe Asp Phe Ser Trp
 195 200 205
 Ile Ser Leu Lys Thr Ile Leu Ser Leu Val Leu Val Gly Ala Cys Ile
 210 215 220
 Thr Leu Gly Ala Tyr Leu Gly His Lys
 225 230

<210> 4
 <211> 239
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> BCL2 proteins

<400> 4
 Met Ala His Ala Gly Arg Thr Gly Tyr Asp Asn Arg Glu Ile Val Met
 1 5 10 15
 Lys Tyr Ile His Tyr Lys Leu Ser Gln Arg Gly Tyr Glu Trp Asp Ala
 20 25 30
 Gly Asp Val Gly Ala Ala Pro Pro Gly Ala Ala Pro Ala Pro Gly Ile
 35 40 45
 Phe Ser Ser Gln Pro Gly His Thr Pro His Thr Ala Ala Ser Arg Asp
 50 55 60
 Pro Val Ala Arg Thr Ser Pro Leu Gln Thr Pro Ala Ala Pro Gly Ala
 65 70 75 80
 Ala Ala Gly Pro Ala Leu Ser Pro Val Pro Pro Val Val His Leu Thr
 85 90 95
 Leu Arg Gln Ala Gly Asp Asp Phe Ser Arg Arg Tyr Arg Arg Asp Phe
 100 105 110
 Ala Glu Met Ser Arg Gln Leu His Leu Thr Pro Phe Thr Ala Arg Gly
 115 120 125
 Arg Pro Ala Thr Val Val Glu Leu Phe Arg Asp Gly Val Asn Trp
 130 135 140
 Gly Arg Ile Val Ala Phe Phe Glu Phe Gly Gly Val Met Cys Val Glu
 145 150 155 160
 Ser Val Asn Arg Glu Met Ser Pro Leu Val Asp Asn Ile Ala Leu Trp
 165 170 175
 Met Thr Glu Tyr Leu Asn Arg His Leu His Thr Trp Ile Gln Asp Asn
 180 185 190
 Gly Gly Trp Asp Ala Phe Val Glu Leu Tyr Gly Pro Ser Met Arg Pro
 195 200 205

Leu Phe Asp Phe Ser Trp Leu Ser Leu Lys Thr Leu Leu Ser Leu Ala
 210 215 220
 Leu Val Gly Ala Cys Ile Thr Leu Gly Ala Tyr Leu Gly His Lys
 225 230 235

<210> 5
 <211> 237
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> BCL2 proteins

<400> 5
 Met Ser Tyr Tyr Asn Arg Glu Leu Val Val Phe Phe Ile Lys Tyr Lys
 1 5 10 15
 Leu Ser Gln Arg Asn Tyr Pro Cys Asn His Ile Gly Leu Thr Glu Asp
 20 25 30
 Thr Asn Arg Thr Asp Gly Ala Glu Glu Asn Gly Glu Gly Ala Ala Gly
 35 40 45
 Ala Thr Thr Leu Val Asn Gly Thr Met Asn Arg Thr Asn Ala Ser Ser
 50 55 60
 Thr Gly Thr Pro Pro Gln Ser Pro Ala Ser Ser Pro Gln Arg Gln Thr
 65 70 75 80
 Asn Gly Ser Gly Gly Leu Asp Ala Val Lys Glu Ala Leu Arg Asp Ser
 85 90 95
 Ala Asn Glu Phe Glu Leu Arg Tyr Ser Arg Ala Phe Asn Asp Leu Ser
 100 105 110
 Gln Leu His Ile Thr Pro Ala Thr Ala Tyr Gln Ser Phe Glu Ser Val
 115 120 125
 Met Asp Glu Val Phe Arg Asp Gly Val Asn Trp Gly Arg Ile Val Gly
 130 135 140
 Leu Phe Ala Phe Gly Gly Ala Leu Cys Val Glu Cys Val Glu Lys Glu
 145 150 155 160
 Met Ser Pro Leu Val Gly Arg Ile Ala Glu Trp Met Thr Val Tyr Leu
 165 170 175
 Asp Asn His Ile Gln Pro Trp Ile Gln Ser Gln Gly Gly Trp Glu Arg
 180 185 190
 Phe Ala Glu Ile Pro Gly Lys Asp Ala Ala Ala Glu Ser Arg Lys Ser
 195 200 205
 Gln Glu Ser Pro Lys Lys Trp Leu Phe Ala Gly Met Thr Leu Leu Thr
 210 215 220
 Gly Val Val Val Gly Gly Leu Ile Ala Gln Lys Arg Leu
 225 230 235

<210> 6
 <211> 204
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> BCL2 proteins

<400> 6
 Met Glu Gly Ser Ser Arg Asp Leu Val Glu Lys Phe Val Ser Lys Lys
 1 5 10 15
 Leu Ser Gln Asn Glu Ala Cys Arg Lys Phe Ser Asn Asn Pro Gln Pro

20	25	30	
Asn Ala Ile Ser Asn Gly Thr Ser Thr Ser Glu Arg Pro Gly Glu Gly			
35	40	45	
Ala Thr Gln Gly Ile Val Glu Glu Glu Val Leu Gln Ala Leu Leu Glu			
50	55	60	
Ala Thr Glu Glu Phe Glu Leu Arg Tyr Gln Arg Ala Phe Ser Asp Leu			
65	70	75	80
Thr Ser Gln Leu His Ile Thr Gln Asp Thr Ala Gln Gln Ser Phe Gln			
85	90	95	
Gln Val Met Gly Glu Leu Phe Arg Asp Gly Thr Asn Trp Gly Arg Ile			
100	105	110	
Val Ala Phe Phe Ser Phe Gly Arg Ala Leu Cys Val Glu Ser Ala Asn			
115	120	125	
Lys Glu Met Thr Asp Leu Leu Pro Arg Ile Val Gln Trp Met Val Asn			
130	135	140	
Tyr Leu Glu His Thr Leu Gln Pro Trp Met Gln Glu Asn Gly Gly Trp			
145	150	155	160
Glu Ala Phe Val Gly Leu Tyr Gly Lys Asn Ala Ala Ala Gln Ser Arg			
165	170	175	
Glu Ser Gln Glu Arg Phe Gly Arg Leu Leu Thr Ile Val Met Leu Thr			
180	185	190	
Gly Val Phe Ala Leu Val Cys Tyr Met Arg Arg Arg			
195	200		

<210> 7
 <211> 229
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> BCL2 proteins

400	7		
Met Ser Ser Ser Asn Arg Glu Leu Val Ile Asp Phe Val Ser Tyr Lys			
1	5	10	15
Leu Ser Gln Arg Gly His Cys Trp Ser Glu Leu Glu Glu Glu Asp Glu			
20	25	30	
Asn Arg Thr Asp Thr Ala Ala Glu Ala Glu Met Asp Ser Val Leu Asn			
35	40	45	
Gly Ser Pro Ser Trp His Pro Pro Ala Gly His Val Val Asn Gly Ala			
50	55	60	
Thr Val His Arg Ser Ser Leu Glu Val His Glu Ile Val Arg Ala Ser			
65	70	75	80
Asp Val Arg Gln Ala Leu Arg Asp Ala Gly Asp Glu Phe Glu Leu Arg			
85	90	95	
Tyr Arg Arg Ala Phe Ser Asp Leu Thr Ser Gln Leu His Ile Thr Pro			
100	105	110	
Gly Thr Ala Tyr Gln Ser Phe Glu Gln Val Val Asn Glu Leu Phe His			
115	120	125	
Asp Gly Val Asn Trp Gly Arg Ile Val Ala Phe Phe Ser Phe Gly Gly			
130	135	140	
Ala Leu Cys Val Glu Ser Val Asp Lys Glu Met Arg Val Leu Val Gly			
145	150	155	160
Arg Ile Val Ser Trp Met Thr Thr Tyr Leu Thr Asp His Leu Asp Pro			
165	170	175	
Trp Ile Gln Glu Asn Gly Gly Trp Glu Arg Phe Val Asp Leu Tyr Gly			
180	185	190	
Asn Asn Ala Ala Glu Leu Arg Lys Gly Gln Glu Thr Phe Asn Lys			

195	200	205
Trp Leu Leu Thr Gly Ala Thr Val Ala Gly Val Leu Leu Leu Gly Ser		
210	215	220
Leu Leu Ser Arg Lys		
225		

<210> 8
<211> 233
<212> PRT
<213> Artificial Sequence

<220>
<223> BCL2 proteins

<400> 8

Met Ser Gln Ser Asn Arg Glu Leu Val Val Asp Phe Leu Ser Tyr Lys			
1	5	10	15
Leu Ser Gln Lys Gly Tyr Ser Trp Ser Gln Phe Ser Asp Val Glu Glu			
20	25	30	
Asn Arg Thr Glu Ala Pro Glu Gly Thr Glu Ser Glu Met Glu Thr Pro			
35	40	45	
Ser Ala Ile Asn Gly Asn Pro Ser Trp His Leu Ala Asp Ser Pro Ala			
50	55	60	
Val Asn Gly Ala Thr Ala His Ser Ser Ser Leu Asp Ala Arg Glu Val			
65	70	75	80
Ile Pro Met Ala Ala Val Lys Gln Ala Leu Arg Glu Ala Gly Asp Glu			
85	90	95	
Phe Glu Leu Arg Tyr Arg Arg Ala Phe Ser Asp Leu Thr Ser Gln Leu			
100	105	110	
His Ile Thr Pro Gly Thr Ala Tyr Gln Ser Phe Glu Gln Val Val Asn			
115	120	125	
Glu Leu Phe Arg Asp Gly Val Asn Trp Gly Arg Ile Val Ala Phe Phe			
130	135	140	
Ser Phe Gly Gly Ala Leu Cys Val Glu Ser Val Asp Lys Glu Met Gln			
145	150	155	160
Val Leu Val Ser Arg Ile Ala Ala Trp Met Ala Thr Tyr Leu Asn Asp			
165	170	175	
His Leu Glu Pro Trp Ile Gln Glu Asn Gly Gly Trp Asp Thr Phe Val			
180	185	190	
Glu Leu Tyr Gly Asn Asn Ala Ala Glu Ser Arg Lys Gly Gln Glu			
195	200	205	
Arg Phe Asn Arg Trp Phe Leu Thr Gly Met Thr Val Ala Gly Val Val			
210	215	220	
Leu Leu Gly Ser Leu Phe Ser Arg Lys			
225	230		